

U.S. Environmental Protection Agency Natural Gas STAR Program



Overview for Transmission Companies

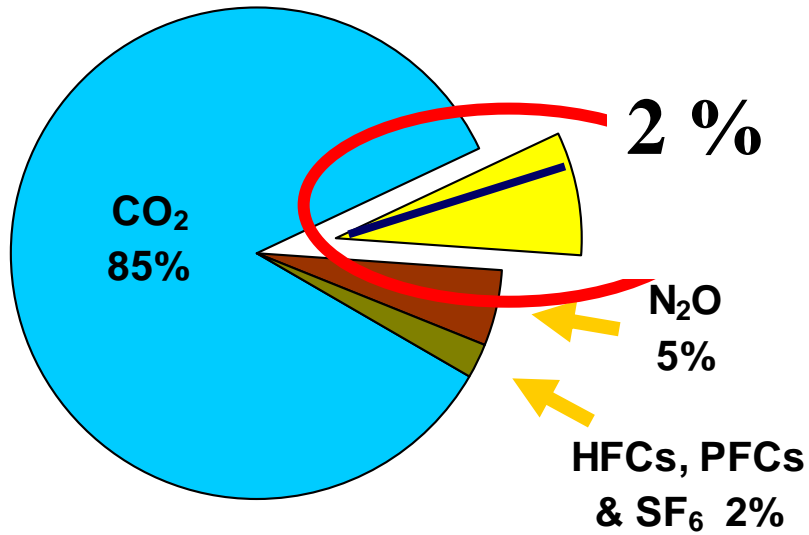
**Reducing Emissions
Increasing Efficiency
Maximizing Profits**





Background: U.S. Greenhouse Gas Emissions

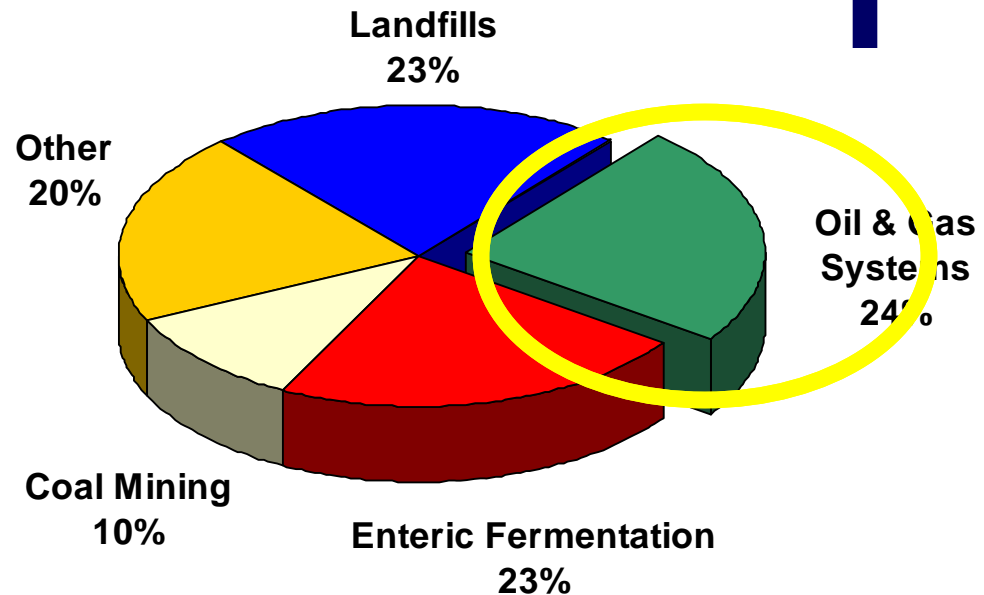
U.S. Greenhouse Gas Emissions All Sources



Oil and gas systems are the **largest** man-made source of methane emissions (**24%**)

Methane emissions from Oil and gas systems make up 2% of total U.S. greenhouse gas emissions

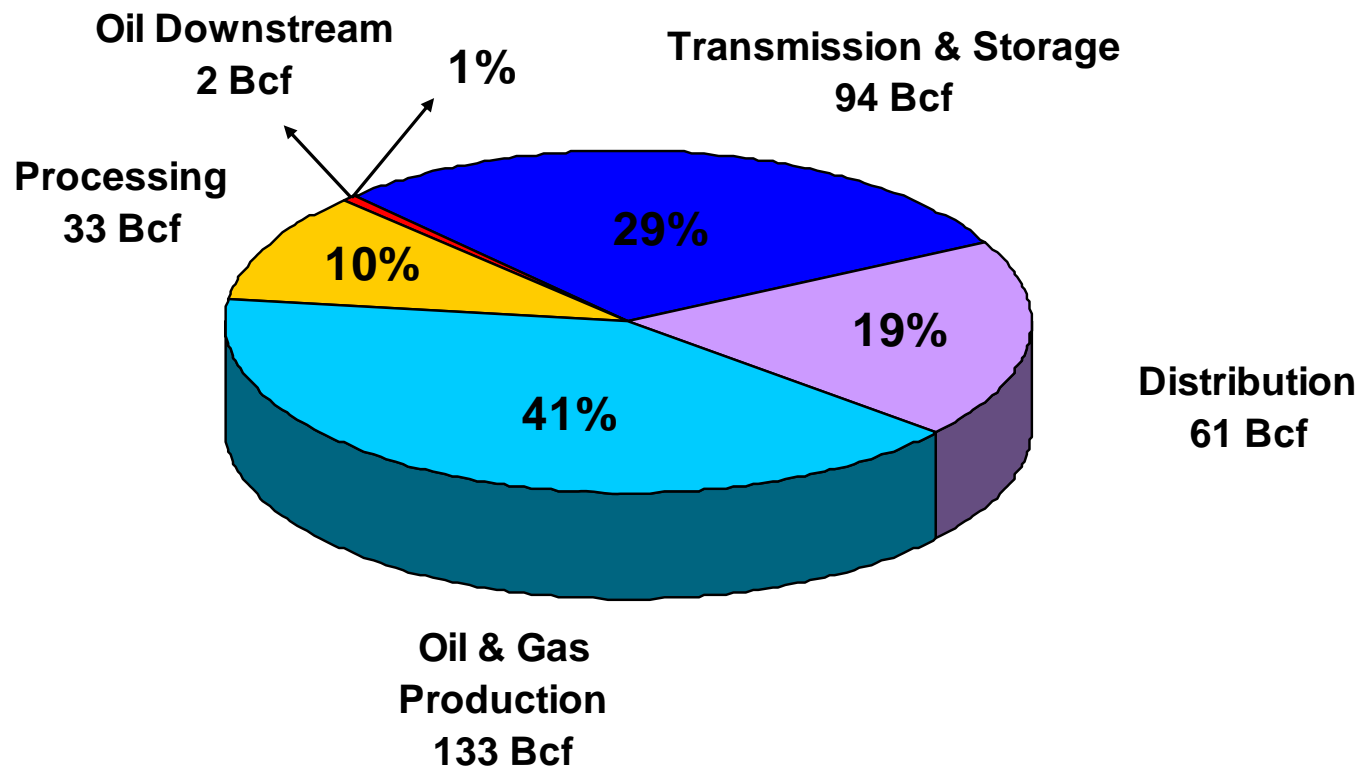
U.S. Methane Emissions by Sector





Background: U.S. Oil and Gas Methane Emissions by Sector

- 2006 U.S. methane emissions from oil and natural gas industry: 323 Bcf (2% of total U.S. greenhouse gas emissions)

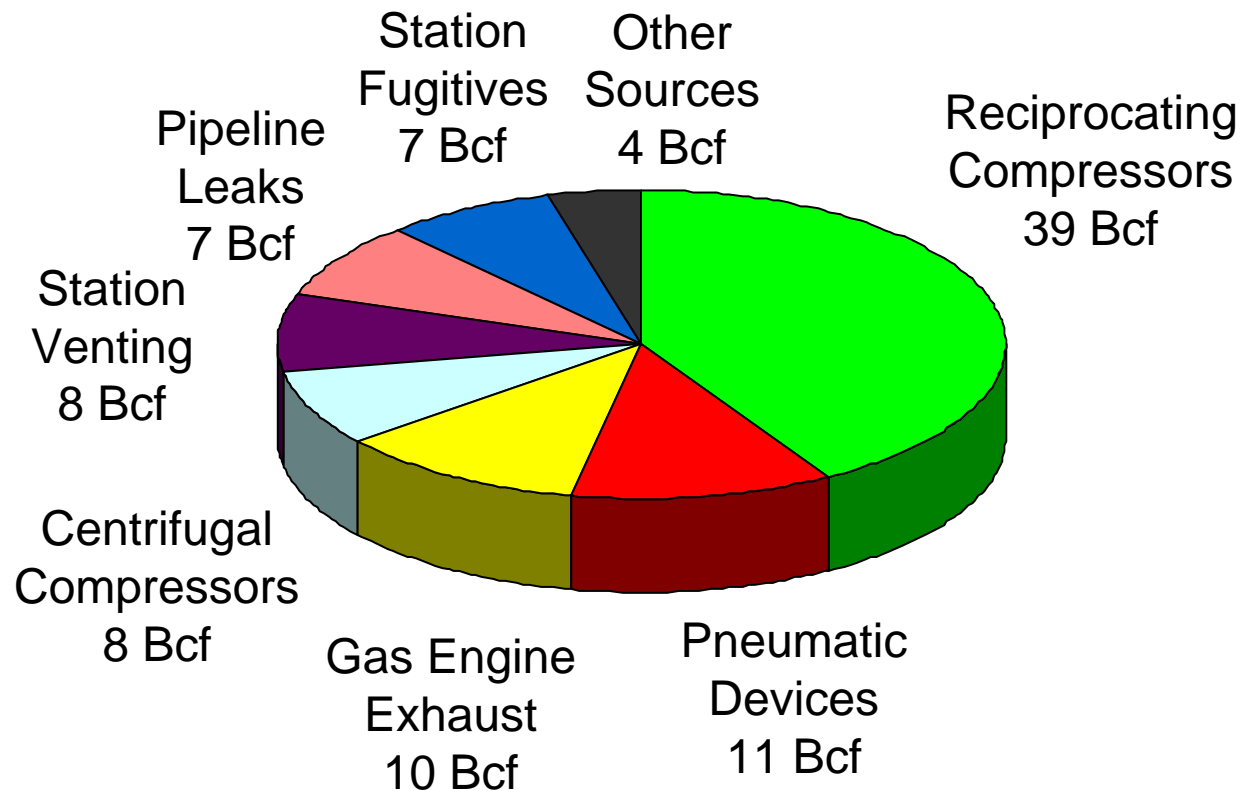


Source: EPA. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 – 2006*. April, 2008.

Note: Natural Gas STAR reductions from gathering and boosting operations are reflected in the production sector.



Background: Transmission Sector Methane Emissions



Source: EPA. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 – 2006*. April, 2008.
Natural Gas STAR reductions data shown as published in the inventory.



U.S. Oil & Natural Gas Opportunities: Why Gas STAR?

- 💧 **323 Bcf of methane emissions per year amounts to:**
 - 💧 \$2.26B worth of gas lost (at \$7/Mcf)
 - 💧 CO₂ emissions from the electricity use of 17.3 million homes for one year
 - 💧 Annual greenhouse gas emissions from 23.9 million passenger vehicles

- 💧 **U.S. oil and natural gas industry has an opportunity to cost-effectively reduce methane emissions resulting in:**
 - 💧 Increased operational efficiency
 - 💧 Increased profits
 - 💧 Increased domestic gas supply
 - 💧 Improved safety
 - 💧 Improved environmental performance
 - 💧 Better public relations





The Natural Gas STAR Program

The Natural Gas STAR Program is a *flexible, voluntary partnership* between EPA and the oil and natural gas industry designed to *cost-effectively* reduce methane emissions from oil and natural gas operations.

More Than 120 Partners:

For a complete listing of Natural Gas STAR partner companies and industry association endorsers, visit
epa.gov/gasstar/partners/index.html



Key Components

- 💧 **Guidance on new technologies and practices**
 - 💧 Technical documents on more than 80 cost-effective technologies and practices
 - 💧 Free Technology Transfer workshops
 - 💧 One-on-one technical assistance to identify and prioritize cost-effective methane emission reduction opportunities



- 💧 **Annual record of partner voluntary actions and methane savings**

Technical Information



Project Demonstrations

Workshops



Annual Reports



Benefits to Participation

- 💧 **Save time identifying the “right” technologies and practices to reduce methane emissions and increase revenue**
 - 💧 Technical information and economic analyses based on partner companies’ field experiences
 - 💧 One-on-one assistance to identify and prioritize cost-effective projects appropriate for a company’s operating environment
- 💧 **Build network with industry peers, draw upon their experience and success**
 - 💧 Sector specific Technology Transfer Workshops and Annual Implementation Workshops
- 💧 **Minimal resources required to administer the Program—these are provided:**
 - 💧 Standardized forms and default emission values
 - 💧 Data collection software and online reporting
 - 💧 Gas STAR technical support staff
- 💧 **Enhanced corporate reputation**
 - 💧 Public recognition and easy methods to quantify environmental benefits
- 💧 **Voluntary record of reductions and benchmarking reports detailing accomplishments**



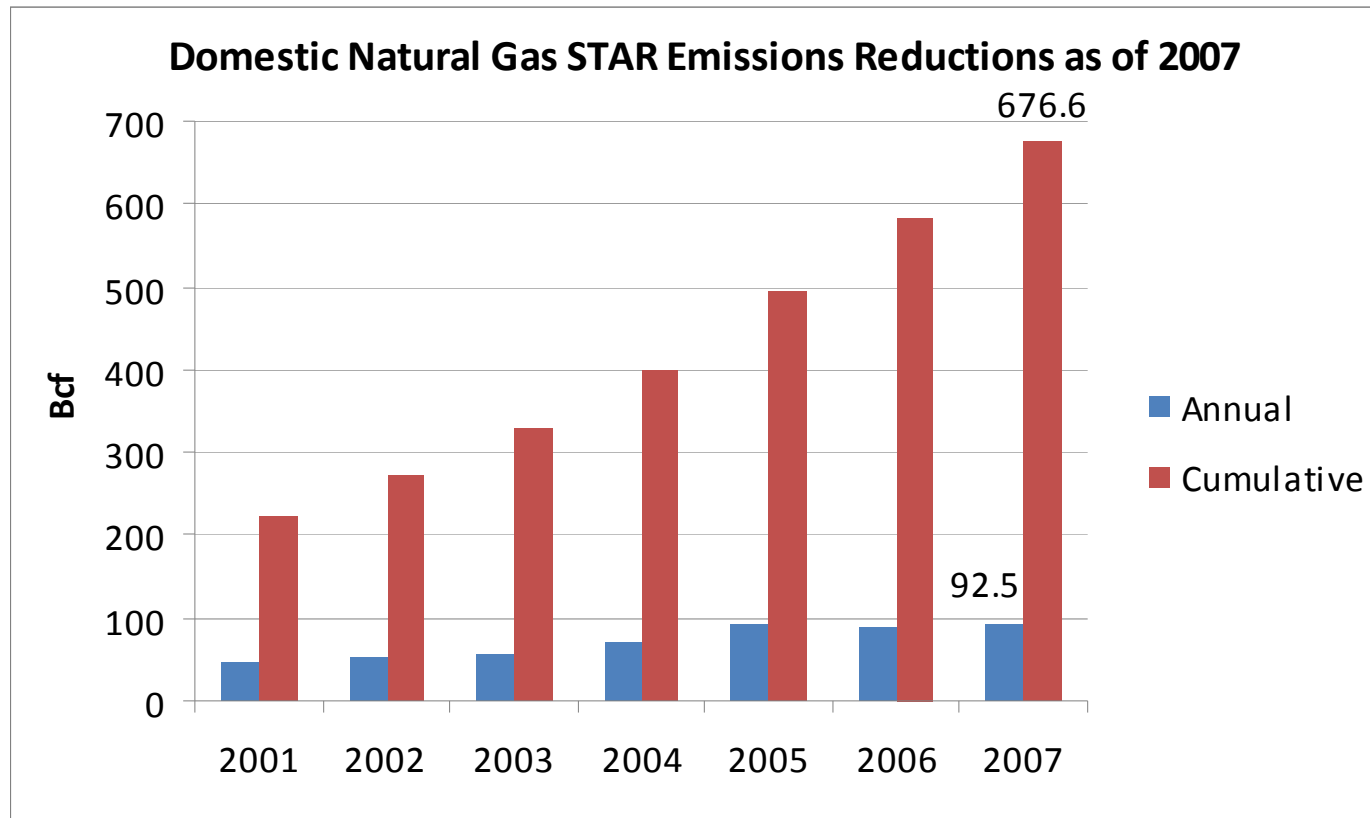
Key Steps to Participation

- 🔥 **Step 1: Sign the Memorandum of Understanding (MOU)** and market Gas STAR internally—develop a supportive corporate environment from the beginning.
- 🔥 **Step 2: Submit an Implementation Plan** outlining how Gas STAR will be incorporated into company operations.
- 🔥 **Step 3: Participate in the Gas STAR Program** based on corporate goals and resources, act on cost-effective methane emission reduction opportunities, attend workshops, and report activities and accomplishments.
- 🔥 **Step 4: Submit annual progress reports** (after one full year of participation) documenting the previous year's achievements.



Accomplishments

- Through participation in the Natural Gas STAR Program, partners reduced methane emissions by **92.5 Bcf in 2007**
- 677 Bcf in cumulative reductions since 1993





Northern Natural Gas Case Study

(Joined February 2003)

Program Implementation to Ensure Success

- The Program supports Northern Natural Gas's corporate policy of Responsibility, Efficiency, Stewardship, Performance, Evaluation, Communication, and Training (RESPECT)
- Created a regional Natural Gas STAR recommended technology implementation team, directed by an implementation manager who is a strong advocate for the Program, spearheading profitable methane reduction projects



Examples: Key Achievements and Contributions

- Sponsored workshops and provided hands-on experience to operations staff on tools and methods to detect and quantify methane leaks at Sprayberry compressor station
- **Company saved over 14.5 Bcf of gas from 2003 through 2006** by identifying and fixing emission sources such as scrubber dump valves and reciprocating compressor rod packing, and from avoiding blow downs when performing maintenance, etc.
- Recipient of multiple Gas STAR awards including a Continuing Excellence award in 2007





Resources and Contact Information

- 🔥 Learn more about Natural Gas STAR, visit: **epa.gov/gasstar**
- 🔥 Detailed information on recommended technologies and practices: **epa.gov/gasstar/tools/recommended.html**
- 🔥 Gas STAR forms including MOU, Implementation Plan, and Annual Reporting forms: **epa.gov/gasstar/tools/program-forms.html**
- 🔥 Additional information on implementing the Natural Gas STAR Program: **epa.gov/gasstar/guidelines/index.html**



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